and an electrical system of an electrical braking system, wherein:

when the fault affects those of the wheel brakes supplied by the first power circuit, the control driving signals for one of the valve arrangements are generated, a power for an activation of the one of the valve arrangements originating from the second power circuit, and a warning is generated to inform a driver of fault detection.

REMARKS

I. Introduction

Claims 1-9 are now pending. Claims 1-9 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter not described in the specification. Claims 4 and 5 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 1, 3, 4, 6 and 8 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,456,523 ("Boehringer"). Claims 2 and 5 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,248,191 ("Kondo et al"). Claims 1, 3, 4, and 6 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,296,328 ("Corio et al."). Claim 9 is rejected under 35 U.S.C. § 102(e) as being anticipated by Corio et al. Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Corio et al. in view of Boehringer. Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo et al. in view of Corio et al.

Applicants respectfully request the Examiner to reconsider the above-captioned application in view of the above amendments and the following remarks.

II. Claims 1-9 and § 112, first paragraph

Claims 1-9 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter not described in the specification. To facilitate matters, claims 1-5, 8 and 9 have been amended to clarify those claims in accordance with the Examiner's suggestions. It is therefore respectfully requested that this rejection be withdrawn as to claims 1-9.

III. Claims 4 and 5 and § 112, second paragraph

Claim 4 and claim 5 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Claim 4 and claim 5, which have been rewritten in

independent form, recite that "in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited." The Examiner's stated rationale for indefiniteness rejection is that it is unclear why the vehicle would be "slowed down unnecessarily," which allegedly would cause a safety problem if the vehicle is in traffic when the control slows down the vehicle against the driver's wish.

Initially, Applicants note that claims 4 and 5 do not recite that the speed is "decreased"; rather, claims 4 and 5 recite that the speed is "limited," which merely prevents the speed to be increased beyond the limit. In addition, the Examiner's inquiry about why one would limit the speed is not pertinent to determining whether § 112, second paragraph, requirements have been met. "The essential inquiry pertaining to this requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity." MPEP 2173.02. There is absolutely no ambiguity as to the meaning of the statement "in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited." Furthermore, the claimed limitation is clearly supported by the original specification at p. 13, line 25 - p. 14, line 4 ("an intervention is made into the engine management and/or transmission management for the purpose of limiting the speed of the vehicle").

While the Examiner interprets the limitation "in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited" as meaning "engine management or transmission management might or might not be intervened" (based on the description of box 614 in Figure 12), this interpretation not only clearly contradicts the plain meaning of the limitation, but also contradicts the well-established rule that limitations cannot be read into the claims from the specification. It should be noted that box 614 of Figure 12 simply encompasses different possible embodiments, one of which is that "in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited." Mere showing of different possible embodiments in the drawings cannot support the Examiner's interpretation that the limitation "in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited" means "engine management or transmission management might or might not be intervened."

For the foregoing reasons, it is therefore respectfully requested that the § 112, second paragraph, rejection be withdrawn as to claim 4 and claim 5.

IV. Claims 1, 3, 4, 6 and 8 are not anticipated by Boehringer

Claims 1, 3, 4, 6 and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,456,523 ("Boehringer").

To anticipate a claim under § 102, a single prior art reference must identically disclose each and every claim element. See Lindeman Machinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997). Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claim invention, arranged as in the claim. Lindeman, 703 F.2d 1458 (Emphasis added).

Claim 1 recites that "when the fault affects those of the wheel brakes supplied by the first power circuit, the control driving signals for one of the valve arrangements are generated, a power for an activation of the one of the valve arrangements originating from the second power circuit." While the Examiner relies on the Abstract of Boehringer for teaching the claimed limitation, nothing in Boehringer teaches use of electrical power circuits in conjunction with the disclosed wheel brake system. In fact, the Abstract and the specification of Boehringer clearly indicate that the disclosed brake system merely includes **two purely hydraulic systems** which provide redundancy in case of failure in one of the two hydraulic systems, but there is absolutely no mention of use of electrical power circuits.

In view of the above discussion, applicants respectfully submit that Boehringer does not anticipate claim 1. Claims 3, 6 and 8 depend from claim 1, so the above argument regarding claim 1 applies equally to claims 3, 6 and 8, and Boehringer also fails to anticipate claims 3, 6 and 8. Claim 4 incorporates the above-discussed limitations of claim 1, so Boehringer also fails to anticipate claim 4. Further regarding claim 4, which recites that "in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited," the Examiner concedes that "Boehringer is silent of engine management when the fault is detected." Furthermore, as explained above, this limitation clearly cannot be read as meaning "in a fault condition of one of the wheel brakes, a speed of the motor vehicle **may or may not** be limited." Accordingly, Boehringer fails to anticipate claim 4 for at least this reason.

V. Claims 2 and 5 are not anticipated by Kondo et al.

Claims 2 and 5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,248,191 ("Kondo").

To anticipate a claim under § 102, a single prior art reference must identically disclose

each and every claim element. See Lindeman Machinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997). Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claim invention, arranged as in the claim. Lindeman, 703 F.2d 1458 (Emphasis added).

Claim 2 recites that "when the fault occurs in one of an accumulator circuit, a pump circuit, and the first power circuit, a valve is activated at a brake actuator of a front one of the wheel brakes, the valve isolating the pump circuit from the accumulator circuit." According to the Examiner, Kondo teaches that "[w]hen there exists an electric failure, valve 11 is actuated to isolate accumulator 30 from pump 31, column 4, lines 61-66." However, nothing in the cited section, or any other section, of Kondo teaches actuation of valve 11 in case of **an electric failure**. Accordingly, for at least this reason, claim 2 is not anticipated by Kondo.

Claim 5 incorporates the above-discussed limitations of claim 2, so the above argument regarding claim 2 applies equally to claim 5, and Kondo et al. also fails to anticipate claim 5. Further regarding claim 5, which recites that "in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited," the Examiner concedes that "Kondo is silent of engine management when the fault is detected." Furthermore, as explained above, this limitation clearly cannot be read as meaning "in a fault condition of one of the wheel brakes, a speed of the motor vehicle **may or may not** be limited." Accordingly, Kondo fails to anticipate claim 5 for at least this reason.

VI. Claims 1, 3, 4, and 6 are not anticipated by Corio et al.

Claims 1, 3, 4, and 6 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,296,325 ("Corio").

To anticipate a claim under § 102, a single prior art reference must identically disclose each and every claim element. See Lindeman Machinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997). Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claim invention, arranged as in the claim. Lindeman, 703 F.2d 1458 (Emphasis added).

Claim 1, as amended, recites that "a warning is generated to inform a driver of fault

detection." Corio fails to teach at least this limitation of claim 1. Hence, claim 1 is not anticipated by Corio.

Claims 3 and 6 depend from claim 1, so the above argument regarding claim 1 applies equally to claims 3 and 6, and Corio also fails to anticipate claims 3 and 6. Regarding claim 4, which recites that "in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited," the Examiner concedes that Corio "is silent of engine management when the fault is detected." Furthermore, as explained above, this limitation clearly cannot be read as meaning "in a fault condition of one of the wheel brakes, a speed of the motor vehicle **may or may not** be limited." Accordingly, Corio fails to anticipate claim 4 for at least this reason.

VII. Claim 9 is not anticipated by Corio et al.

Claim 9 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Corio et al.

To anticipate a claim under § 102, a single prior art reference must identically disclose each and every claim element. See Lindeman Machinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997). Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claim invention, arranged as in the claim. Lindeman, 703 F.2d 1458 (Emphasis added).

Claim 9, as amended, recites that "a warning is generated to inform a driver of fault detection." Corio fails to teach at least this limitation of claim 9. Hence, claim 9 is not anticipated by Corio.

VIII. The Rejection of Claim 8 under 35 U.S.C. § 103(a) should be withdrawn

Claim 8 stands rejected under 35 U.S.C. § 103(a). It is contended that this claim is unpatentable over Corio in view of Boehringer. Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), the prior art must teach or suggest each element of the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990). Applicants respectfully submit that at least this criterion for obviousness is not met here.

Claim 8 depends on claim 1. Consequently, all claim limitations of claim 1 of the present application that Corio et al. and Boehringer do not teach or suggest (as discussed above in connection with the § 102(b) and § 102(e) rejections) are also not taught or suggested with respect to claim 8 of the present application. Neither Corio nor Boehringer teaches that "a warning is generated to inform a driver of fault detection." Accordingly, claim 8 is not rendered obvious for at least the reasons given for allowability of claim 1.

For at least the reasons discussed above, withdrawal of the rejection under 35 U.S.C. § 103(a) with respect to claim 8 is hereby respectfully requested.

IX. The Rejection of Claim 7 under 35 U.S.C. § 103(a) should be withdrawn

Claim 7 stands rejected under 35 U.S.C. § 103(a). It is contended that this claim is unpatentable over Kondo in view of Corio. Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), the prior art must teach or suggest each element of the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990). Applicants respectfully submit that at least this criterion for obviousness is not met here.

Claim 7 depends on claim 2. Consequently, all claim limitations of claim 2 of the present application that Kondo and Corio do not teach or suggest (as discussed above in connection with the § 102(b) and § 102(e) rejections) are also not taught or suggested with respect to claim 7 of the present application. Neither Kondo nor Corio teaches that "a warning is generated to inform a driver of fault detection." Accordingly, claim 7 is not rendered obvious for at least the reasons given for allowability of claim 2.

For at least the reasons discussed above, withdrawal of the rejection under 35 U.S.C. § 103(a) with respect to claim 7 is hereby respectfully requested.

X. CONCLUSION

In light of the foregoing, Applicants respectfully submit that all pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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Dated: 6/12/03

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The paragraph beginning at page 4, line 28 has been amended as follow:

--Control module VA receives signals from actuator 10, specifically from measuring devices 10a, 10b and 10c, the signals representing the wheel braking pressure in left front wheel PRVL, in right front wheel [PHSVA] PRVR as well as the pressure in high-pressure accumulator PHSVA of the front axle actuator. The corresponding notation applies to control module HA which receives the corresponding variables of actuator 12 (see measuring devices 12a to 12c). Via output lines, control module VA activates hydraulic pump HP to charge the hydraulic accumulator of the front axle brake module, as well as the inlet and outlet valves of the right and the left front wheel brakes (EVVL, EVVR, AVVL, AVVR). Similarly, control module HA controls hydraulic pump HP of rear axle actuator 12 as well as the inlet and outlet valves of rear wheel brakes EVHL, EVHR, AVHL and AVHR. Actuator 10 is operated within the first electrical power circuit and actuator 12 is operated within the second electrical power circuit.--.

The paragraph beginning at page 7, line 5 has been amended as follows:

--Figure 4 shows a preferred embodiment of actuator 20. In this case also, a reservoir 200 is provided from which hydraulic pump HP delivers pressure medium via a non-return valve RV. The pump builds up pressure in brake line 202. Brake line 202 is connected to the wheel brakes of the right and left front wheel, respectively, via inlet valves EVVR and EVVL, which are closed when de-energized. Braking pressure PRVR and PRVL, respectively, is detected in the area of these front wheel brakes. Shut-off valve [TVP] TVPS isolates brake line 202 from a redundant branch 204. It is closed when de-energized. The second branch has a hydraulic accumulator HS, sensor PHSVA for the pressure in the hydraulic accumulator, and two redundant inlet valves EV2VR and EV2VL, which are connected hydraulically to the above-described inlet valves which are connected in parallel.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

These valves are also closed when de-energized. While the first-mentioned inlet valves as well as the shut-off valve are controlled by control module VA and thus supplied from the first power circuit, the redundant inlet valves are controlled by control module HA and thus supplied with power from second power circuit E2. Both branches are combined in one wheel brake line each for each wheel brake. Return lines branch off from these wheel brake lines, the return lines leading back to reservoir 200 via outlet valves AVVR and AVVL, which are open when de-energized. The outlet valves can be actuated from first power circuit E1 as well as from second power circuit E2. This is attained, for example by two independent valve windings or by decoupled redundant control lines.--.

The paragraph beginning at page 7, line 25 has been rewritten as follows:

--The actuator shown in Figure 4 has increased availability. It is preferably used only on the front axle of the braking system. In the proper operating state, shut-off valve TVPS, which is closed when de-energized, is open, i.e., energized. When the brake is operated, pressure from high-pressure accumulator HS is fed into the wheel brake circuits via inlet valves EVVR and EVVL. Operation of the outlet valves from control module VA maintains or reduces the pressure. As described above, hydraulic pump HP is activated to again increase the pressure at the time of a braking operation and/or when the accumulator pressure drops. It charges the accumulator via the open shut-off valve. In the event of a fault, e.g., a leak in the accumulator circuit between the shut-off valve, hydraulic accumulator and redundant inlet valves (see brake line 204), the shut-off valve is closed. The leak is detected, for example, by the wheel brake pressure characteristics and/or the accumulator pressure characteristics. The pressure required for a braking operation can then no longer be obtained from the accumulator but rather it is produced by the pump as required by the brake. In contrast to normal operation, the result of this is a reduction of braking pressure buildup dynamics and the loss of the chronological separation between pressure production and wheel brake control; however, the other properties of the braking system such as wheel-individual braking force modulation and maximum attainable pressure level are not adversely affected.--.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Amend claims 1-5, 8 and 9 as follows:

1. (Amended) A method for controlling wheel brakes in an electrical braking system of a motor vehicle, comprising the steps of:

generating control driving signals for valve arrangements for a control of a braking pressure in a first group of the wheel brakes from a first power circuit and for a control of a braking pressure in a second group of the wheel brakes from a second power circuit that is independent of the first group of the wheel brakes; and

detecting a [first] fault in an area of at least one of the valve arrangements, a pressure supply, and an electrical system of the electrical braking system, wherein:

when [a second] the fault affects those of the wheel brakes supplied by the first power circuit, the control driving signals for one of the valve arrangements are generated, a power for an activation of the one of the valve arrangements originating from the second power circuit, and a warning is generated to inform a driver of fault detection.

2. (Amended) A method for controlling wheel brakes in an electrical braking system of a motor vehicle, comprising the steps of:

generating control driving signals for valve arrangements for a control of a braking pressure in one of the wheel brakes from a first power circuit, a braking pressure being provided by at least one of an accumulator and a pump; and

detecting a [first] fault in an area of at least one of the valve arrangements, a pressure supply, and an electrical system of the electrical braking system, wherein:

when [a second] the fault occurs in one of an accumulator circuit, a pump circuit, and the first power circuit, a valve is activated at a brake actuator of a front one of the wheel brakes, the valve isolating the pump circuit from the accumulator circuit.

3. (Amended) The method according to claim 1, wherein:

when [a] the fault condition occurs, the control driving signals are generated to actuate at least one of additional valve arrangements and existing valve arrangements via a redundant electrical control on the basis of the power of the second power circuit.

4. (Amended) [The method according to claim 1, wherein:] A method for controlling wheel brakes in an electrical braking system of a motor vehicle, comprising the steps of:

generating control driving signals for valve arrangements for a control of a braking pressure in a first group of the wheel brakes from a first power circuit and for a control of a braking pressure in a second group of the wheel brakes from a second power circuit that is independent of the first group of the wheel brakes; and

detecting a fault in an area of at least one of the valve arrangements, a pressure supply, and an electrical system of the electrical braking system, wherein:

when the fault affects those of the wheel brakes supplied by the first power circuit, the control driving signals for one of the valve arrangements are generated, a power for an activation of the one of the valve arrangements originating from the second power circuit; and

in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited.

5. (Amended) [The method according to claim 2, wherein:] A method for controlling wheel brakes in an electrical braking system of a motor vehicle, comprising the steps of:

generating control driving signals for valve arrangements for a control of a braking pressure in one of the wheel brakes from a first power circuit, a braking pressure being provided by at least one of an accumulator and a pump; and

detecting a fault in an area of at least one of the valve arrangements, a pressure supply, and an electrical system of the electrical braking system, wherein:

when the fault occurs in one of an accumulator circuit, a pump circuit, and the first power circuit, a valve is activated at a brake actuator of a front one of the wheel brakes, the valve isolating the pump circuit from the accumulator circuit; and

in a fault condition of one of the wheel brakes, a speed of the motor vehicle is limited.

8. (Amended) The method according to claim 1, wherein:

when [a] the fault condition occurs, control driving signals of a control module of those of the wheel brakes corresponding to rear axle brakes are generated to activate additional valve arrangements via which a braking pressure in those of the wheel brakes corresponding to front wheel brakes is set.

9. (Amended) A computer program for causing a computing unit of a control unit to perform the steps of:

generating control driving signals for valve arrangements for a control of a braking pressure in a first group of wheel brakes from a first power circuit and for a control of a braking pressure in a second group of the wheel brakes from a second power circuit that is independent of the first group of the wheel brakes; and

detecting a [first] fault in an area of at least one of the valve arrangements, a pressure supply, and an electrical system of an electrical braking system, wherein:

when [a second] the fault affects those of the wheel brakes supplied by the first power circuit, the control driving signals for one of the valve arrangements are generated, a power for an activation of the one of the valve arrangements originating from the second power circuit, and a warning is generated to inform a driver of fault detection.